APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,501	02/12/2001	Sadayuki Abeta	202863US2	8133

22850 7590 10/10/2007		EXAMINER
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.		MAIS, MARK A
1940 DUKE STREET		
ALEXANDRIA, VA 22314		

ART UNIT	PAPER NUMBER
2619	

NOTIFICATION DATE	DELIVERY MODE
10/10/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	09/780,501	ABETA ET AL.
	Examiner	Art Unit	
	Mark A. Mais	2616	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>10 July 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>See Continuation Sheet</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>7,8,10,11,13,14,16,17,19,20,28,29,31,32,34,35,37,38,40,41 and 50</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☒ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. <u>9/19/2007</u> .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41 and 50 are

rejected under 35 U.S.C. 102(e) as being anticipated by Sakoda et al. (USP 6,563,881) and

102(b) as being anticipated by Sakoda et al. (WO 00/03508) [USP 6,563,881 serving as English

translation for WO 00/03508—hereinafter referred to as Sakoda et al.].

3. With regard to claim 7, Sakoda et al. discloses a multi-carrier CDMA radio transmitting

method [e.g., col. 1, lines 18-29 regarding DC-CDMA and col. 2, lines 53-59 and col. 4, lines

39-59 regarding transmission in a multi-carrier scheme] replicating each information symbol

[e.g., Fig. 17, see symbol repetition unit 152; col. 15, line 41 to col. 16, line 15] disposing a

thus-obtained information symbols along a frequency axis [e.g., see col. 10, lines 30-32 and col.

15, line 41 to col. 17, line 49 regarding frequency axis], multiplying the thus-obtained

information symbols by a spreading code along a frequency axis [e.g., see col. 5, lines 18-25

regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading

performed with a spread factor], thus spreading the information symbols into components of a

plurality of sub-carriers having different frequencies [e.g., see col. 4, lines 39-59; col. 5, lines

18-42; and col. 10, lines 23-44], and thus rendering multiplex transmission of the information

[e.g., see col. 5, line 18 to col. 6, line 3], comprising the step of:

enabling a transmission rate of the information to be changed [e.g., see col. 6, lines 4-8;

col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-28 regarding transmission rates] by

controlling multiplex transmission intervals along a time axis *between a first transmission and a*

subsequent transmission [e.g., see col. 10, lines 15-44 regarding time axis, and see col. 12,

lines 3-16 regarding multiplexed transmission] for each user to which information is to be

transmitted [e.g., see col. 6, line 66 to col. 7, line 10; col. 9, line 10 to col. 22, line 7; and col.

25, line 59 to col. 28, line 13].

4. With regard to claim 8, Sakoda et al. discloses a multi-carrier CDMA radio transmitting

method [e.g., col. 1, lines 18-29 regarding DC-CDMA and col. 2, lines 53-59 and col. 4, lines

39-59 regarding transmission in a multi-carrier scheme] replicating each information symbol

[e.g., Fig. 17, see symbol repetition unit 152; col. 15, line 41 to col. 16, line 15] disposing a

thus-obtained information symbols along a frequency axis [e.g., see col. 10, lines 30-32 and col.

15, line 41 to col. 17, line 49 regarding frequency axis], multiplying the thus-obtained

information symbols by a spreading code along a frequency axis [e.g., see col. 5, lines 18-25

regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading

performed with a spread factor], thus spreading the information symbols into components of a

plurality of sub-carriers having different frequencies [e.g., see col. 4, lines 39-59; col. 5, lines

18-42; and col. 10, lines 23-44], and thus rendering multiplex transmission of the information

[e.g., see col. 5, line 18 to col. 6, line 3], comprising the step of:

enabling a transmission rate of the information to be changed [e.g., see col. 6, lines 4-8;

col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-28 regarding transmission rates] by

controlling the number of modulation levels [e.g., see col. 12, lies 17-36 regarding differential

modulation; and see col. 17, line 64 to col. 19, line 31 regarding controlling differential

modulation levels] used *for each user* when the information symbols to be spread are obtained

through data manipulation [e.g., see col. 6, line 66 to col. 7, line 10; col. 9, line 10 to col. 22,

line 7; and col. 25, line 59 to col. 28, line 13].

5. With regard to claim 28, Sakoda et al. discloses a multi-carrier CDMA radio transmitting

apparatus [e.g., col. 1, lines 18-29 regarding DC-CDMA and col. 2, lines 53-59 and col. 4,

lines 39-59 regarding transmission in a multi-carrier scheme] replicating each information

symbol [e.g., Fig. 17, see symbol repetition unit 152; col. 15, line 41 to col. 16, line 15]

disposing a thus-obtained information symbols along a frequency axis [e.g., see col. 10, lines 30-

32 and col. 15, line 41 to col. 17, line 49 regarding frequency axis], multiplying the thus-

obtained information symbols by a spreading code along a frequency axis [e.g., see col. 5, lines

18-25 regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding

spreading performed with a spread factor], thus spreading the information symbols into

components of a plurality of sub-carriers having different frequencies **[e.g., see col. 4, lines 39-59; col. 5, lines 18-42; and col. 10, lines 23-44]**, and thus rendering multiplex transmission of the information **[e.g., see col. 5, line 18 to col. 6, line 3]**, comprising:

an intermittent control part **[e.g., inherently within the transmitter; Fig. 6;** *See also* **col. 6, lines 4-8; col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates]** controlling multiplex transmission intervals *between a first transmission and a subsequent transmission* along a time axis **[e.g., see col. 10, lines 15-44 regarding time axis, and see col. 12, lines 3-16 regarding multiplexed transmission]** for each user to which information is to be transmitted **[e.g., see col. 6, line 66 to col. 7, line 10; col. 9, line 10 to col. 22, line 7; and col. 25, line 59 to col. 28, line 13]**.

6. With regard to claim 29, Sakoda et al. discloses a multi-carrier CDMA radio transmitting apparatus **[e.g., col. 1, lines 18-29 regarding DC-CDMA and col. 2, lines 53-59 and col. 4, lines 39-59 regarding transmission in a multi-carrier scheme]** replicating each information symbol **[e.g., Fig. 17, see symbol repetition unit 152; col. 15, line 41 to col. 16, line 15]** disposing a thus-obtained information symbols along a frequency axis **[e.g., see col. 10, lines 30-32 and col. 15, line 41 to col. 17, line 49 regarding frequency axis]**, multiplying the thus-obtained information symbols by a spreading code along a frequency axis **[e.g., see col. 5, lines 18-25 regarding spreading multiplexed signals; and see col. 1, lines 51-59 regarding spreading performed with a spread factor]**, thus spreading the information symbols into components of a plurality of sub-carriers having different frequencies **[e.g., see col. 4, lines 39-**

59; col. 5, lines 18-42; and col. 10, lines 23-44], and thus rendering multiplex transmission of the information [e.g., see col. 5, line 18 to col. 6, line 3], comprising:

a modulation level control part [e.g., inherently within the transmitter; Fig. 6; *See also* col. 6, lines 4-8; col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-18 regarding transmission rates] enabling a transmission rate of the information to be changed [e.g., see col. 6, lines 4-8; col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-28 regarding transmission rates] by controlling the number of modulation levels [e.g., see col. 12, lies 17-36 regarding differential modulation; and see col. 17, line 64 to col. 19, line 31 regarding controlling differential modulation levels] used *for each user* when the information symbols to be spread are obtained through data manipulation [e.g., see col. 6, line 66 to col. 7, line 10; col. 9, line 10 to col. 22, line 7; and col. 25, line 59 to col. 28, line 13].

7. With regard to claims 10-11 and 31-32, Sakoda et al. discloses respective sub-carriers assigned for the spreading of the information symbols are orthogonal along the frequency axis [e.g., see col. 9, line 10 to col. 10, line 44; col. 24, lines 16-35 regarding orthogonality].

8. With regard to claims 13-14 and 34-35, Sakoda et al. discloses that the respective sub-carriers assigned for the spreading of the information symbols have frequency characteristics such that the frequency spectra do not overlap between each adjacent sub-carrier [e.g., see col. 9, line 10 to col. 10, line 44].

9. With regard to claims 16-17, 19-20, 37-38, and 40-41, Sakoda et al. discloses that the sub-carriers assigned for the spreading of each information symbol are disposed discretely, successively, and continuously along the frequency axis **[e.g., col. 9, line 10 to col. 10, line 44]**.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakoda et al.

12. Sakoda et al. discloses a enabling a transmission rate of the information to be changed **[e.g., see col. 6, lines 4-8; col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-28 regarding transmission rates]** by controlling multiplex transmission intervals along a time axis **[e.g., see col. 10, lines 15-44 regarding time axis, and see col. 12, lines 3-16 regarding multiplexed transmission]** for each user to which information is to be transmitted **[e.g., see col. 6, line 66 to col. 7, line 10; col. 9, line 10 to col. 22, line 7; and col. 25, line 59 to col. 28, line 13]**. Sakoda et al. does not specifically disclose that the intervals are adjusted prior to spreading.

However, Applicants have not disclosed that adjusting the intervals prior to spreading solves any stated problem or is for any particular reason. There is already a well-known inverse

relationship between increasing the transmission rate and shortening the data transmission

interval [as well as decreasing the transmission rate by lengthening the data transmission

interval]. Applicants have not disclosed that adjusting the intervals prior to spreading solved

any stated problem or is for any particular purpose other an optimization of a known method of

controlling the multiplex transmission intervals along a time axis. Accordingly, it would have

been obvious to one of ordinary skill in the art at the time of the invention to modify when the

intervals are adjusted in view of Sakoda et al. because such modifications are considered a mere

design choice consideration, which fails to patentably distinguish over the prior art of Sakoda et

al. In addition, modifying when the intervals are adjusted is interpreted as an optimum value for

a known process. A discovery of an optimum value for a known process is obvious engineering.

See In re Aller, 105 USPQ 233 (CCPA 1955).

Response to Arguments

13. Applicant's arguments filed have been fully considered but they are not persuasive.

14. With respect to claims 7 and 28, Applicants argue that Sakoda et al. discloses a null symbol

insertion unit is provided to make a symbol rate equal to a maximum transmission rate

irrespective of the original bit stream and has nothing to do with changing transmission rates by

controlling multiplexing [**Applicant's Amendment dated July 10, 2007, Remarks page 1,**

paragraph 5 to page 2, paragraph 3].

15. If Applicant is arguing that the Sakoda et al.'s null symbol insertion unit allows a uniform multi-carrier output, the examiner respectfully agrees. However, if Applicant is arguing that the Sakoda et al. cannot change transmission rates or have different bit rates mixed together for transmission, the examiner respectfully disagrees. Sakoda et al. specifically discloses that the frequency intervals can be variably set depending on the transmission rate of the transmit data **[col. 5, line 60 to col. 6, line 8]**.

16. With respect to claims 8 and 29, Applicant states that Sakoda fails to disclose that the modulation levels are changed for each user **[Applicant's Amendment dated July 10, 2007, Remarks page 2, paragraph 4 to page 3, paragraph 1]**. The examiner respectfully disagrees.

17. As noted in the rejection of claim 8 above, Sakoda et al. discloses enabling a transmission rate of the information to be changed **[e.g., see col. 6, lines 4-8; col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-28 regarding transmission rates]** by controlling the number of modulation levels **[e.g., see col. 12, lies 17-36 regarding differential modulation; and see col. 17, line 64 to col. 19, line 31 regarding controlling differential modulation levels]** used by each user when the information symbols to be spread are obtained through data manipulation **[e.g., see col. 6, line 66 to col. 7, line 10; col. 9, line 10 to col. 22, line 7; and col. 25, line 59 to col. 28, line 13]**.

Conclusion

18. Accordingly, **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension

of time policy as set forth in 37 CFR 1.136(a).

19. A shortened statutory period for reply to this final action is set to expire THREE MONTHS

from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of

the mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on

the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory

period for reply expire later than SIX MONTHS from the mailing date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Mark A. Mais whose telephone number is 572-272-3138. The examiner

can normally be reached on M-Th 5am-4pm.

21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Wing F. Chan can be reached on 571-272-7493. The fax phone number for the organization

where this application or proceeding is assigned is 571-273-8300.

22. Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAM

September 19, 2007

WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER

Continuation of Disposition of Claims: Claims pending in the application are
7,8,10,11,13,14,16,17,19,20,28,29,31,32,34,35,37,38,40,41 and 50.